

Pattern Block Fractions

Reporting Category Number and Number Sense

Topic Comparing, ordering, and representing fractions

Materials

- Pattern Blocks handout (attached)
- Pattern blocks

Vocabulary

fraction, whole, part, numerator, denominator, like denominators, unlike denominators, greater than, less than, equal to, represent

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Distribute pattern blocks and copies of the Pattern Blocks handout. Explain to students that they will be figuring out which blocks will fit in each figure to represent fractions. Complete the first problem together as a class by directing students to put two hexagons in the first shape. Ask, "How many hexagons does it take to make the whole shape?" (2) "So, what fraction of the whole shape is each hexagon?" ($\frac{1}{2}$) Repeat this process with triangles, trapezoids, and rhombi. Make sure students understand that putting a hexagon pattern block and several triangle pattern blocks in the same shape will not represent a fraction because the hexagon block and the triangle block are not equal in size.
2. Have students complete problems 2 and 3 on their own or with a partner, filling the shapes with like equal-size blocks and indicating what fraction of the whole shape each block is.
3. Have students share their answers to problems 2 and 3. Ask students for a different name for the top number of a fraction (numerator) and a different name for the bottom number of a fraction (denominator). From this point on, use this vocabulary consistently to teach the mathematical names. You may wish to share with the students the following mnemonic devices:
 - numerator = up; denominator = down
 - numerator = the number of pieces being described; denominator = the number of equal pieces something has been divided into
4. Have students complete problem 4. Discuss findings with class.

Assessment

- **Questions**
 - What would the numerator be if I had 3 green triangles to cover one hexagon?
 - What would the denominator of this fraction be?

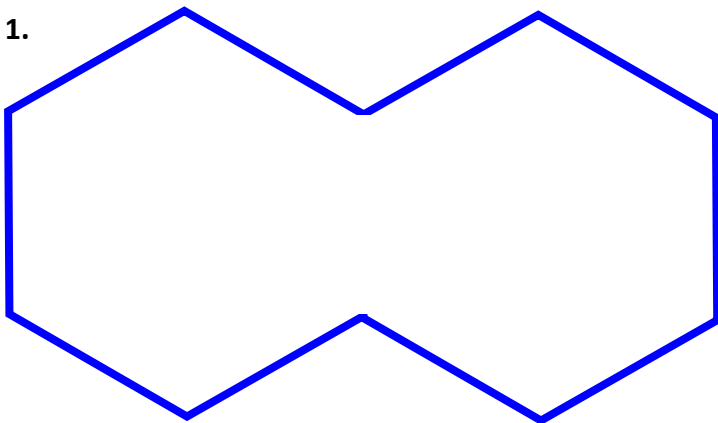
- What is another way to name this fraction?
- **Journal/Writing Prompts**
 - Explain the meanings of *numerator* and *denominator*, using pictures, numbers, and words.
 - Using pattern blocks, write equivalent fractions. (e.g., $\frac{1}{2} = \frac{3}{6}$) List as many as you can.
- **Other**
 - During the activities, observe students' ability to create fractions, using equal-size blocks. Also, observe students' ability to figure how many pieces are needed to create a whole.

Extensions and Connections (for all students)

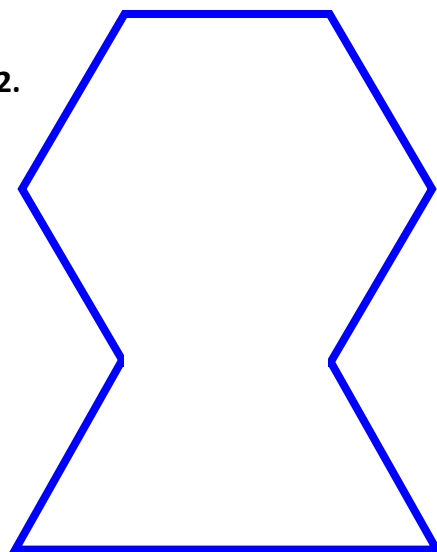
- Have students create their own pattern block pictures and write the fraction(s) represented by the blocks they use, or have a partner write the fractions. Remind them that they may only use one type of pattern block to represent a fraction.

Pattern Blocks

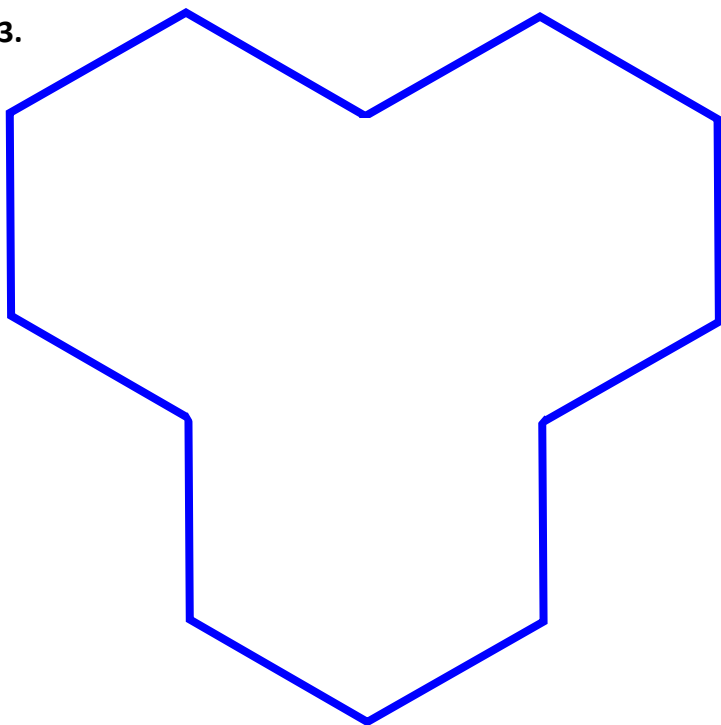
1.



2.



3.



4.

